Cytokinins as plantlet growth inhibitors in *Kalanchoe daigremontiana*

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INTRODUCTION

Kalanchoe daigremontiana is a succulent plant native to Madagascar.

Plants in this genus produce plantlets in the grooves along their leaf margins capable of detaching and producing a new individual.

This is how *K. daigremontiana* reproduces, and its efficiency at producing these plantlets has earned it the title "mother of thousands."

The physical mechanism producing these plantlets is well-studied, however the chemical catalyst enabling their growth was more elusive.

It has been hypothesized that it is the level of cytokinins, plant hormones known for their role in cell division and differentiation, that either enables or inhibits plantlet growth.

PREDICTIONS

Cytokinins act as inhibitors of plantlet production in the genus *Kalanchoe*.

Kalanchoe daigremontiana normally has low levels of cytokinins, allowing extensive plantlets to form.

The addition of trans-Zeatin (a cytokinin) to *Kalanchoe daigremontiana*, raising the hormone level, will inhibit normal plantlet growth.

Plantlet growth in Kalanchoe is directly related to the level of cytokinins present.

METHODS

Sixty plantlets were removed from a mother *Kalanchoe daigremontiana* and planted.

5 mL of $2x10^{-6}$ M trans-Zeatin was applied to 30 of these plants every 3-4 days over two months.

The other half were a control group of *Kalanchoe daigremontiana* and were given no treatments.

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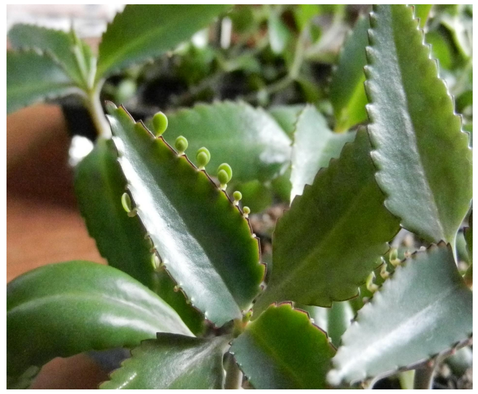
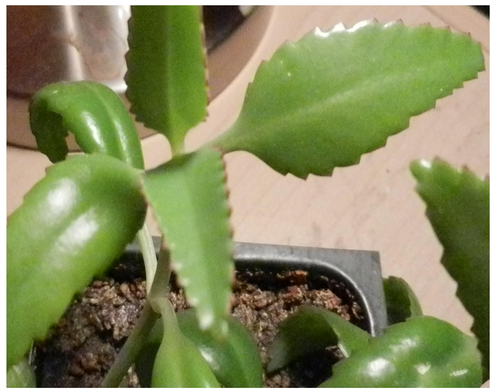
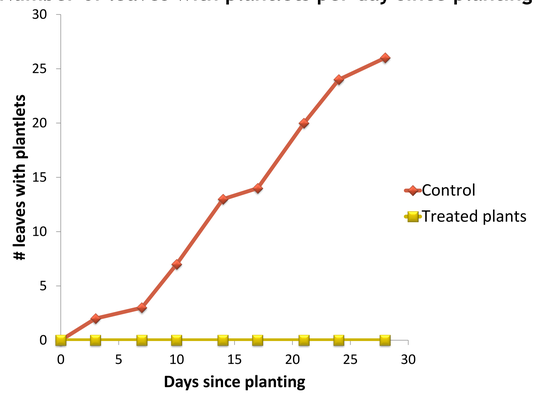
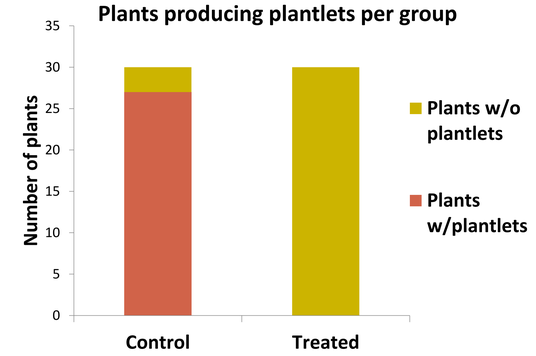
CONTROL GROUP	TREATED WITH TRANS-ZEATIN
 2/15/14	 2/15/14
 4/1/14	 4/1/14
 4/20/14	 4/20/14

RESULTS

Number of leaves with plantlets per day since planting



Plants producing plantlets per group



CONCLUSIONS

Plantlet growth in *Kalanchoe daigremontiana* was inhibited by the addition of trans-Zeatin.

Plants given regular treatments of cytokinins did not produce any plantlets; control plants did produce the plantlets.

Cytokinins (or the lack of) play an clear role in the production/suppression of these plantlets.

Adding to their known role in plants, cytokinins can also influence and maintain dormancy by inhibiting reproductive plantlet formation in *Kalanchoe daigremontiana*.

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